ON-LAND CIVIL ENGINEERING

Operations

With a century-long history as a highly-reputed, reliable contractor in marine construction and engineering, TOA also has accumulated experience and expertise in on-land civil engineering through the completion of various projects. Among the projects are roads, bridges, railways, tunnels, water dams, river dikes and water gates, water supply and drainage systems, sewage collection and treatment facilities, land development, and environmental mitigation and rehabilitation programs. In each and every project, TOA has devoted all of its capabilities to faithfully execute its duties and responsibilities as a contractor, enhancing TOA's reputation as one of the most trustworthy contractors in Japan.

Paiton III Power Plant (Indonesia)

The construction of a supercritical pressure coal-fired power generation plant was completed in April 2012 in Paiton, which is situated in East Java Province in the Republic of Indonesia, creating the largest coal-fired power plant in the country. Construction of the power plant was ordered by PT Paiton Energy, a company that was established through a joint venture as an IPP. Toa Corporation was in charge of the comprehensive civil engineering and construction work for this project.

2nd Magsaysay Bridge and Butuan City Bypass Road (Philippines)

In the Republic of the Philippines, the road network bears 90% of the passenger traffic and 50% of the cargo transportation, but many roads in various areas are unpaved or too narrow to keep up with the growing volume of traffic. Funded by an aid-loan from Japan's ODA program, the Government planned a bypass road in Butuan City to improve traffic conditions and bolster the economy in the northeastern region of Mindanao Island. In this connection, the Philippines awarded a contract to a joint venture of TOA and Nippon Steel Corporation to build the 2nd Magsaysay Bridge, a steel cable-stayed bridge with a total length of 882m, a two-lane bypass road with a total length of 8.1km, and two link roads with a length of 1.33km and 2.9km respectively to connect the bypass road with the existing main road.

Rehabilitation of Sewage Drainage System(Tokyo, Japan)

The sewerage network in downtown Tokyo, was constructed nearly one century ago.The Tokyo Metropolitan Government started a project to rehabilitate the sewage drainage network through reconstruction and refurbishment. TOA was awarded a contract to reconstruct the drainage system for surface runoff in Chiyoda ward. Against the construction site of narrow streets with heavy traffic and a dense concentration of buildings, TOA's highly-qualified engineers dealt with various difficulties and utilized the shield tunnel method to complete the drainage system, which measured 2,058m in length with an inner diameter of 2,200mm, on schedule without any accidents.

Newly Completed Project

Earthquake Resistance Construction Work on Shibakawa Floodgate (H25)

The land that spreads out in the downstream part of the Arakawa River is an area that is below sea level, and should the Arakawa River overflow and breach its banks due to flooding or other reasons, it is anticipated that the area would suffer devastating damage. The Shibakawa Floodgate, which is double-sluice gate type floodgate located at the confluence of the Arakawa River and the Shibakawa River along the left bank of the Arakawa River about 19.7 km from its mouth, was installed for the purpose of preventing floodwater from the Arakawa River flowing back into the Shibakawa River. An earthquake resistance project is underway to enable the floodgate to function even if an earthquake occurs directly underneath Tokyo, in addition to its function to reduce damage from flooding.
Toa Corporation executed earthquake resistance construction work on the right side of the floodgate as viewed in the photograph. The Company is carrying out construction work on left side of the floodgate, too, under a separate work contract.

■ **Client**
Ministry of Land, Infrastructure, Transport and Tourism

■ **Construction period**
October 2013 to June 2017

■ **Site of construction**
Kawaguchi City, Saitama Prefecture

■ **Project outline**
Work to strengthen rebar jacketing (floodgate column: AT-P method) 257m², Shear reinforcement work (floor slab: PHb method) 1,760 bars, Shear reinforcement work (sluice column: RMA method) 480 anchors, Rebar installation through middle sluice column 160 rebars, Construction work on temporary cofferdam (steel stoplogs)

Disaster Recovery Construction Work on Facilities for Preventing Destruction of Woodland in Omagarihama (Hamaichi section)

The coastal disaster prevention forest along the coast of Miyagi Prefecture was effective to a certain degree, achieving such results as reducing damage from the tsunami to the area behind it, but it suffered devastating damage from the earthquake. Work was completed on the construction of the embankment foundation and restoration of the seawall at Omagarihama, Highashimatsushima, with the aim of realizing the early regeneration of the coastal disaster prevention forest through the restoration of the damaged seawall and land where subsidence had occurred.

■ **Client**
Miyagi Prefecture

■ **Site of construction**
Higashimatsushima City, Miyagi Prefecture

■ **Construction period**
December 2014 to October 2017

■ **Project outline**
Work to recovery damage from the Great East Japan Earthquake. Total length of construction: L=3,551.3 m; Construction of seawall embankment body (embankment fill): V=144,932 m³; Waterside slope covering work (concrete block): A=28,858.5 m²; Land side slope covering work (concrete block): A=21,547.3 m²; Levee crown covering work (concrete): L=2,387.6 m; Vegetation base formation work: V=156,135.8 m³